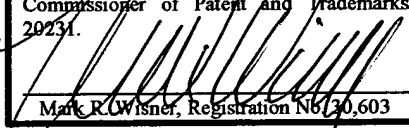


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT EXAMINING OPERATION

In re Application of:	§	Atty. Docket No.:	DRYA,002-03
T.K. Hopper	§		
Serial No.: 10/821,217	§	Examiner:	A. D. Gilman
Filed: April 8, 2004	§		
For: THERMOCOUPLES AND RESISTANCE TEMPER- ATURE DETECTORS OIL WICKING SEAL FITTING	§ § § § § § §	Group Art Unit:	2833

MAIL STOP NON-FEE AMENDMENT  
COMMISSIONER OF PATENTS  
P. O. BOX 1450  
ALEXANDRIA, VA 22313-1450

CERTIFICATE OF MAILING (37 CFR 1.8a)	
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date indicated below with sufficient postage as first class mail in an envelope addressed to the Commissioner of Patent and Trademarks, Washington, D.C. 20231.	
 Mark R. Wisner, Registration No. 30,603	3/23/06 Feb. 23, 2006 Date

**DECLARATION OF TROY K. HOPPER**

I, Troy K. Hopper, hereby declare as follows:

1. I am the inventor of the invention described and claimed in the captioned patent application. I am also the founder and President of Thermo/Probes, Inc., a Houston business that designs, manufactures, and sells a variety of electrical connectors and related products for critical applications and the Assignee of the captioned application, and I am the designer of all the products designed and built by Thermo/Probes. Thermo/Probes, Inc. has been servicing this market for approximately 26 years, and I have been designing and building such products for approximately 39 years such that I have almost 40 years of experience in this specialized market.

2. I have read the second Official Action in the captioned patent application, mailed by the Patent and Trademark Office on September 23, 2005. In doing so, I have noted at least two allegations in that second Official Action that, as a result of my familiarity and experience in the specialty electrical connectors market and with my invention, I recognize as being inconsistent with actual conditions and/or as being inaccurate, and I have prepared this Declaration for the purpose of making evidence of record to refute those allegations. Before actually addressing those allegations, however, and to provide some context for the evidence set out in this Declaration, I must first describe the specific problem my invention addresses.

3. As set out on page 1 of the specification of the captioned application, there is a long-felt need for a solution to the problem of the wicking of lubricating oil from within bearings, motors, pump, turbines, and similar machinery along the lead wires of the thermocouples and/or RTDs that are used to monitor operating conditions in the oil inside the bearings, motors, pumps, turbines, etc. The lube oil, which is generally not under pressure (or subjected to relatively low pressure), works its way along the wires, between the conductors and the insulation, out of the bearings, motors, pumps, turbines, etc. in a way that just does not seem to be capable of being stopped. The problem is particularly troublesome for thermocouples and RTDs because such instruments comprise two side-by-side lead wires with a space between the outer diameter (O.D.) of the lead wires and the inside diameter (I.D.) of the conduit or other structure in which the lead wires are contained. The space between the O.D. of the lead wires and the I.D. of the conduit provides a channel through which the oil wicks out of the bearing, turbine, motor, pump, etc. I am familiar with one installation in south Texas in which lube oil leaks along and through the lead wires fast enough to fill a five gallon bucket with oil almost every day. Many refineries, power generation plants, and other industrial installations have five, ten, and sometimes many more such leaks, multiplying the problem into a substantial difficulty. In addition to environmental compliance issues created by the loss of the lube oil into the environment, this oil wicking can cause damage to the instrumentation to which the lead wires are connected such that the thermocouple/RTD has to be replaced when the plants comes down for outage, turnaround, or maintenance, with the resulting loss of production and costs of replacement and maintenance. In addition, the lube oil lost from the turbine, motors, pumps, and similar machinery must be replaced, and is itself quite expensive.

4. To further illustrate the critical nature of the problem, attached as Exhibit A to this Declaration is a Thermo/Probes, Inc. sales brochure that is specifically aimed at the market for a connector built in accordance with my invention that addresses this oil wicking problem. As shown in Exhibit A, the lube oil can be contained by direct mount or through one of the stainless steel reservoir boxes illustrated in that sales brochure. Another advantage of my invention is that the oil wicking seal fitting is a one time installation in the sense that all that needs to be replaced is the thermocouple/RTD and two O-rings instead of the entire thermocouple/RTD as described in paragraph 3, above. Even though Thermo/Probes, Inc. has been selling connectors constructed in accordance with my invention on only a limited basis and for only about a year, this oil wicking problem is so severe that Thermo/Probes, Inc. has enjoyed great success in the marketing of these connectors, which are sold at installed prices in the thousands of dollars per connector. Thermo/Probes, Inc. has received inquiries as to the availability of the connectors shown in the

attached Exhibit A from industry-leading plant/refinery operators such as Equistar, Exxon-Mobil, and Formosa, and from leading machinery manufacturers such as General Electric.

5. The ability of my invention to stop this oil wicking problem is illustrated by the results obtained after installation of the connector shown in Exhibit A in a refinery operated by Equistar in Corpus Christi, Texas. The connector was installed about six months ago in a location in the Equistar refinery that had experienced constant leaking of lube oil and which had even experienced flash fires. There has been no oil leakage since that connector was installed.

6. Having described the specific problem addressed by my invention, I turn now to the allegations in the Official Action of September 23, 2005 that are inconsistent with actual conditions in the above-described connector market and/or inaccurate. On page 4 of the Official Action, it is alleged that, as set out in The Heritage Dictionary, the word “‘clamp’ means any of various devices used to join, grip, support, or compress mechanical or structural parts,” and that “since elements 34, 36 [of the cited Chamberland, *et al.* patent] at least join, support the conductors,” the rejection of claim 1 of the captioned application was deemed a proper rejection. This allegation was prompted by the remarks set out on pages 4-5 of the **Response to Official Action of March 10, 2005** filed in the captioned application on July 11, 2005 to the effect that Chamberland, *et al.* does not disclose all the structural elements recited in claim 1. Specifically, the **Response to Official Action of March 10, 2005** pointed out that

“a review of the disclosure of Chamberland gives no indication that either of the structure shown at reference numerals 34 or 36 ‘clamps.’ To the contrary, it appears that sleeve 34 and insulator 36 ‘surround’ a center conductor 18. ‘Surrounding’ is not clamping; for that matter, a center conductor is not a lead or sensor wire as recited in claim 1.”

In response to these remarks, the Official Action of September 23, 2005 renewed the §102 rejection of claim 1, alleging (as set out above) that elements 34, 36 constitute the claimed clamp. I am not one to contradict an authority on the English language with enough credibility to be able to publish a dictionary as to the meaning of the word “clamp.” As set out above, however, I do have many years of experience in the electrical connector business, and in the electrical connector business, the word “clamp” refers to something that compresses or crimps a wire for the purpose of making an electrical connection between the wire and another material that conducts electricity. Something that “surrounds” a conductor does not clamp the conductor. By that definition, the insulating jacket that surrounds the lead wire shown in the drawings of the captioned application would constitute a “clamp.” Any attempt to characterize the insulating jacket of a lead wire as a clamp would be dismissed by someone in the connector business as the thinking of someone who is not familiar with the industry. In fact, a review of the disclosure of

Chamberland, *et al.* makes it clear that the structure shown at reference numeral 36 in that patent is indeed insulating material that surrounds the conductor 18 (*see* col. 3, lines 1-2 of that patent). Note that, rather than “clamping” the conductor 18 for the purpose of making an electrical connection between a conductor and another material that conducts electricity, the material 36 shown in Chamberland, *et al.* is intended to “insulate.”

7. I note also that Chamberland, *et al.* does not describe a connector that clamps the lead wire of a sensor as recited in claim 1. As pointed out on page 5 of the **Response to Official Action of March 10, 2005**,

“as set out at col. 1, lines 38-44 of [the Chamberland, *et al.*] patent, the invention described in that patent is intended to connect two **coaxial** cables [emphasis added].”

My invention is, as recited in claim 1, for use in “connecting a thermocouple (TC) or resistance temperature detector (RTD) to a lead wire from a sensor.” The distinction is important because TCs and RTDs require two lead wires that pass through the connector of the present invention (because the wires are of different composition and are compensated so that the TC or RTD will function for its intended purpose). Chamberland, *et al.* shows the end-to-end connection of coaxial cables; it does not disclose a connection between two conductors that is accomplished inside the shell and sleeve recited in claim 1 of the captioned application.

8. As set out in paragraph 2, above, I am making this Declaration for the purpose of pointing out at least two allegations in the Official Action of September 23, 2005 that are inconsistent with actual conditions and/or are inaccurate, and paragraphs 6-7 above are intended to point out the inaccuracy of the allegation that the structure shown at reference numerals 34 and 36 of Chamberland, *et al.* constitutes a clamp as claimed in claim 1 of the captioned application. The second allegation set out in the Official Action of September 23, 2005 that is inconsistent with actual conditions in the electrical connectors field is the allegation near the bottom of page 4 of the Action to the effect that “replacing non-separable connection with separable one [sic] requires the knowledge generally available to one of ordinary skill in the art.” In the context of the field of electrical connectors, the meaning of this allegation is not entirely clear (in part because so far as is known, the phrases “separable connection” and “non-separable connection” have no known meaning and are not used in the field of electrical connectors). However, I can state that in my experience, one generally cannot replace a non-separable connection with a separable connection and obtain the expected results.

9. Preliminarily, it appears from the context of the allegation quoted in paragraph 8 above that the phrase “non-separable connection” is being used interchangeably with the phrase “soldered connection.” If I am correct in this assumption, this allegation is totally inaccurate

because soldering is not the only way to make a connection between two conductors. The reason that there are different ways to connect two conductors other than soldering is because those other types of connections perform differently than soldered connections and different types of connections are utilized based on the particular application in which the connection is utilized.

10. In the context of the present application, however, any allegation that a non-separable connection has been replaced by a separable connection ignores the very function of my invention. As set out in paragraph 3, above, my invention is intended to prevent the wicking of oil along the lead wires of TCs and RTDs. To accomplish that function, the connector must not only seal against the conductors but it must also “break” the conductors so as to stop the wicking of the oil. In my experience, merely soldering the lead wire to a pin inside a shell will not break the path along which the oil wicks. If a soldered connection could function in that manner, the oil wicking problem described in paragraphs 3-4 above and pages 1-2 of the specification of the captioned application would have been solved long ago by simply soldering the lead wires to the connector. Of course soldering could also compromise the compensated nature of the lead wires such that the TC and/or RTD would no longer function for its intended purpose, another example of why my invention does not involve the mere replacement of a non-separable connection with a separable connection.

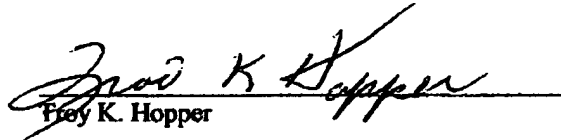
11. Referring to the figures of the captioned application, the “break” described in the paragraph 10, above, is accomplished by the use of the spring-loaded clamp shown at reference numeral 44 (see Figs. 3-5). Because the lead wire extends into the hole 64 in the male connector 14 and is clamped to the conductive pin 66 by the clamp, the oil that wicks along between the conductor in the lead wire and the insulating jacket of the lead wire does not wick along the conductive pin 66. Further, the oil that pools inside male connector 14 in the area between clamp 44 and insulating disk 68, because it is no longer wicking along a continuous conductor, is prevented from further migration by (a) the seal between the periphery of disk 68 and the inside surface of the shell 30 and (b) the seal between the disk 68 and the tube 70 through which the conductive pin 66 extends.

12. To my review, because it discloses a conductor 18 and pin 28 in end-to-end relationship that are surrounded by a sleeve 34 and the insulating material 36, the connector disclosed in Chamberland, *et al.* does not include a “break” of the type described in paragraph 10, above. Instead, it appears to me as if the sleeve 34 and insulating material 36 disclosed in Chamberland, *et al.* would actually cause any oil that is wicking along the outside surface of the conductor 18 to continue wicking right along the surface of the pin 28. However, I note also that Chamberland, *et al.* was not concerned with the oil wicking problem that is solved by my

invention such that there would be no reason for the connector disclosed in that patent to include structure that accomplishes the "break" described in paragraph 10, above. Instead, as described at col. 4, lines 20-22 of that patent, the connector described in that patent is intended for use in "marine outboard cable assemblies and hull penetrations," not for TCs and/or RTDs in turbines, bearings, pumps, motors, and similar machinery that are bathed in oil.

13. Also as a result of my familiarity with the art, I must take issue with the allegation in the middle of page 3 of the Action. It is alleged at the middle of page 3 of the Action that it would have been obvious to provide the Chamberland device with the structure taught by the Gribble patent, but that allegation overlooks the point made in paragraph 12, above, that the Chamberland patent is for use in marine outboard cable assemblies and hull penetrations for coaxial cable. The structure of coaxial cable is designed to maximize its conduction of an electrical signal from an antenna, and to clamp a coaxial cable with a device such as is shown in Gribble would compromise that function of the coaxial cable connector described in Chamberland, *et al.* For this reason, I do not believe that one skilled in the art would be lead to substitute the clamp shown in Gribble into the connector shown in Chamberland, *et al.*

I hereby declare that I am properly authorized to execute this declaration on behalf of Applicant; that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or document or any registration resulting therefrom.

  
Troy K. Hopper

Date: February 23, 2006